

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED  
BLM

30-045-28571 23 PM 1:58  
APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
DRILL  
1b. TYPE OF WELL  
GAS

RECEIVED

AUG 1 1991

OIL CON. DIV.

2. OPERATOR  
MERIDIAN OIL INC. DIST. 3

3. ADDRESS & PHONE NO. OF OPERATOR  
P O BOX 4289  
FARMINGTON, NM 87499

4. LOCATION OF WELL  
2040' FNL 2030' FEL - Section  
790' FNL 790' FEL - BHL

5. LEASE NUMBER

SF-078385A

6. IF INDIAN, ALL. OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

HOWELL L

9. WELL NO.

5

10. FIELD, POOL, OR WILDCAT  
NAVAJO CITY CHACRA EXT

11. SEC. T. R. M OR BLK.

G SEC. 34 T30N R08W NMPM

14. DISTANCE IN MILES FROM NEAREST TOWN  
7 MILES E OF BLANCO

12. COUNTY

SAN JUAN

13. STATE

NM

15. DISTANCE FROM  
PROPOSED LOCATION 2030'  
TO NEAREST PROPERTY  
OR LEASE LINE.

16. ACRES IN LEASE 17. ACRES ASSIGNED TO WELL

320.00

18. DISTANCE FROM  
PROPOSED LOCATION  
TO NEAREST WELL DR. 1500'  
COMPL., OR APPLIED  
FOR ON THIS LEASE.

19. PROPOSED DEPTH 20. ROTARY OR CABLE TOOLS  
3664' 3645 ROTARY

21. ELEVATIONS (DF, FT, GR, ETC.)  
6075' GL

22. APPROX. DATE WORK WILL START

23. PROPOSED CASING AND CEMENTING PROGRAM

\*SEE OPERATIONS PLAN

24. AUTHORIZED BY: [Signature]  
REG. DRILLING ENGR.

7/18/91  
DATE

"Approval of this action does

PERMIT NO. not warrant that the applicant APPROVAL DATE

APPROVED BY holds legal or equitable rights  
or title to this lease."

APPROVED  
AS AMENDED  
DATE

NOTE: THIS FORMAT IS ISSUED IN LIEU OF US BLM FORM 3160-3. [Signature]

ARCH REPORT SUBMITTED 06/13/91

Hold E-104 for NSL, NSPT DD [Signature] NMOCD

Schedule to Appropriation  
District Office  
State Lease - 4 copies  
Fee Lease - 3 copies

State of New Mexico  
Energy, Minerals and Natural Resources Department

RECEIVED Form C-102  
BLM Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

SEP 23 PM 1:53

SANTA FE, NEW MEXICO, N.M.

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P.O. Drawer DD, Artesa, NM 88210

DISTRICT III  
1000 Rio Arriba Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator Meridian Oil Inc.			Lease Howell L			Well No. 5		
Unit Lease G	Section 34	Township 30 North	Range 8 West	County San Juan				
Actual Footage Location of Well: 2040 feet from the North line and 2030 feet from the East line								
Ground level Elev. 6071'		Producing Formation Chacra		Pool Navajo City		Designated Acreage: 320 Acres		

1. Outline the acreage dedicated to the subject well by outlined parcels or include marks on the plat below.

2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by commutation, unitization, forced-pooling, etc.?

☐ Yes ☐ No If answer is "yes" type of consolidation

If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary).

No allowance will be assigned to the well until all interests have been consolidated (by commutation, unitization, forced-pooling, or otherwise) or until a non-standard unit, encompassing such interest, has been approved by the Division.

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature  
Peggy Bradfield

Printed Name  
Regulatory Affairs

Position  
Meridian Oil Inc.

Company  
7-11-91

Date

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes, actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

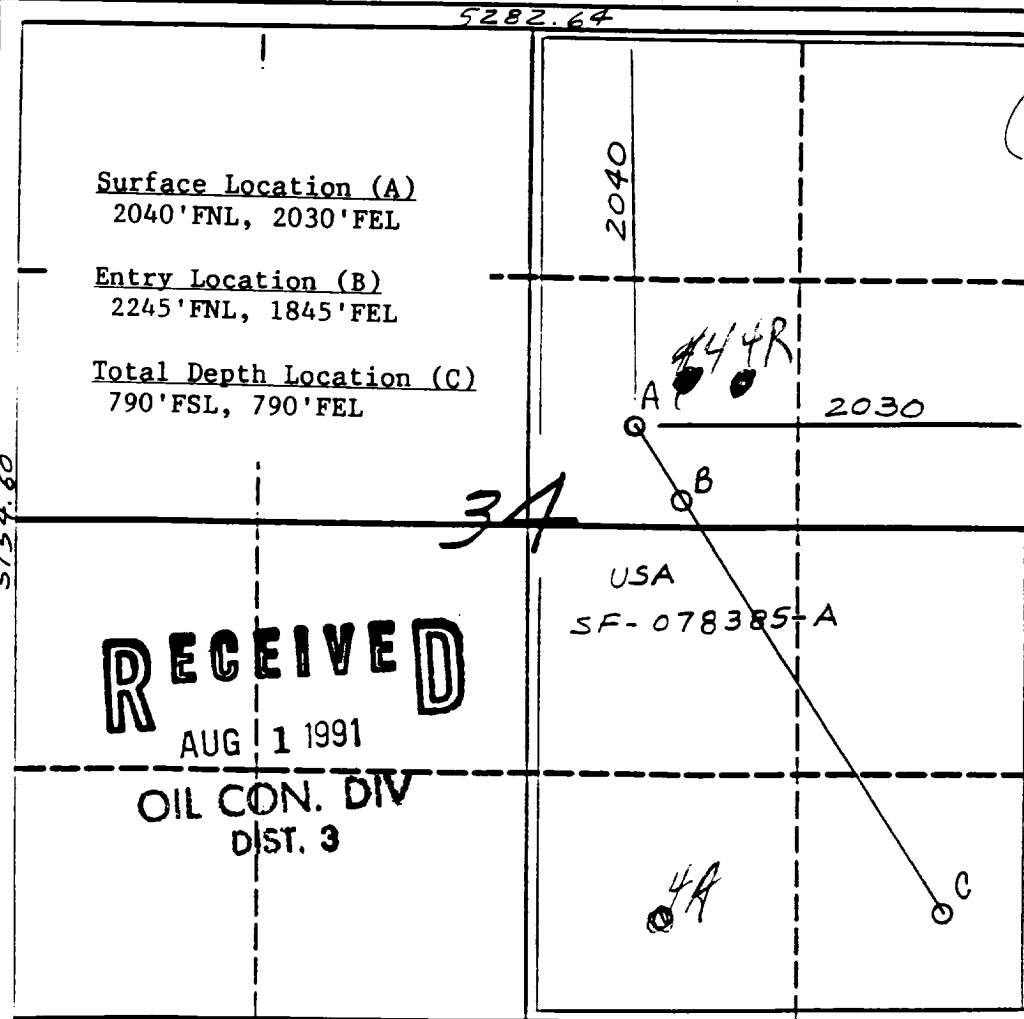
5-31-91

Date Surveyed

Signature  
Neale Edwards

Professional Seal  
NEW MEXICO  
6857  
REGISTERED LAND SURVEYOR

Certification  
Neale Edwards



**Operations Plan  
Howell L #5**

Location: 2040'N, 2030'E, Section 34, T-30-N, R-8-W, San Juan County, NM

Formation: Chacra

Elevation: 6071'GL

**I. Geology:**

**A. Formation Tops (all depths are true vertical):**

Surface	San Jose	Lewis	2980'
Ojo Alamo	1708'	Huerfanito Bentonite	3586'
Kirtland	1911'	Navajo City Chacra	3626'
Fruitland	2504'	Total Depth	3666'
Pictured Cliffs	2852'		

**B. Logging Program:**

Mud logs - 2400' MD to TD;

Wireline Logs - GR/DIL - 300' - 3700' MD  
- FMS - 3150' - 3700' MD

**II. Drilling:**

**A. Mud Program:**

1. 17 1/2" surface hole - 0' to 200' MD - freshwater spud mud
2. 12 1/4" intermediate hole - 200' to 3700' MD - freshwater LSND mud
3. 8 1/2" production hole - 3700' to 6315' MD - gas

**B. Pressure Control Program:**

1. 17 1/2" hole - diversion only
2. 12 1/4" hole - A 3000 psi WP casinghead will be installed on the surface casing. A 3000 psi drilling spool equipped with kill and choke lines will be installed on the casinghead. A 3000 psi double gate BOP will be installed above the drilling spool. A fill-up line, flow line and rotating head will be installed above the double gate BOP. Pipe and blind rams, choke line, and manifold will be tested at 500 psi and 3000 psi with a test plug. Casing will be tested to 1200 psi prior to drilling the shoe.

B. Pressure Control Program (cont'd):

3. 8 1/2" hole - A 3000 psi WP tubinghead will be installed on the casinghead. A 3000 psi drilling spool equipped with kill and choke lines will be installed on the tubinghead. A 3000 psi double gate BOP will be installed above the drilling spool. A fill-up line, bleed line, and rotating head will be installed above the double gate BOP. Pipe and blind rams, choke line, and manifold will be tested at 500 psi and 3000 psi with a test plug. Casing will be tested to 2450 psi prior to drilling the shoe.
4. BOP systems will be consistent with API RP 53. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented in place. Blow out preventer controls will be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned. All tests will be reported on the daily drilling report. Preventers will be tested before drilling casing cement plugs. Kelly cock and full opening safety valve for all connections will be available on rig floor at all times.
5. In the event that a kick is taken while drilling, the following procedure will be followed:
  - a. Pick up kelly and raise the tool joint above floor.
  - b. Shut down the mud pump.
  - c. Close the pipe rams.
  - d. Record standpipe pressure (SIDPP) after it stabilizes and pit gain.
  - e. Calculate Initial Circulating Pressure = Slow Circulating Pressure + SIDPP.
  - f. Calculate kill mud weight required.
  - g. Complete kill sheet.
  - h. Decide whether to raise mud weight or drill under-balanced.

## 7. BOP Configuration:

17 1/2" surface hole - 0' to 200' MD -not applicable

**3000 psi system**

12 1/4" intermediate hole - 200' to 3700' MD -Figure #1 & #3

**3000 psi system**

8 1/2" production hole - 3700' to 6315' MD -Figure #2 & #3

## III. Casing Program: (All casing will be new)

<u>A. Hole Size</u>	<u>Csg. Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Interval</u>
17 1/2"	13 3/8"	48.0#	K-55 ST&C	0' to 200' MD
12 1/4"	9 5/8"	36.0#	K-55 LT&C	200' to 3150' MD
12 1/4"	9 5/8"	47.0#	K-55 LT&C	3150' to 3700' MD
8 1/2"	5 1/2"	20.0#	N-80 LT&C	3650' to 6315' MD

## B. Float Equipment:

13 3/8" casing - guide shoe, float collar, centralizers every 4th joint.

9 5/8" casing - guide shoe, float collar, bowspring centralizers every 4th joint through vertical, and every joint through curve. Turbolizers through Ojo Alamo.

5 1/2" casing - guide shoe, bowspring centralizers every other joint.

## C. Wellhead Equipment:

13 5/8" 3000 psi x 13 3/8" 8rd casing head  
 13 5/8" 3000 psi x 11" 3000 psi tubinghead  
 11" 3000 psi x 3 1/8" 3000 psi adapter

Tree assembly for single completion service.

## IV. Cementing:

17 1/2" surface - cement with 350 sacks Class "B" 65/35 Pozmix with 1/4# flocele/sack and 3% calcium chloride (12.6#/gal. weight; 531 cu.ft. of slurry). Tail with 200 sacks Class "B" neat with 1/4# flocele/sack and 3% calcium chloride (15.6#/gal weight; 235 cu.ft. of slurry). 100% excess circulated to surface.

12 1/4" intermediate -

Lead with 700 sacks of Class "B" 65/35 Pozmix with 1/4# flocele/sack and 2% calcium chloride (12.6#/gal. weight; 1250 cu.ft. of slurry). Tail with 200 sacks Class "B" neat with 1/4# flocele/sack and 2% calcium chloride, (15.6#/gal. weight; 236 cu.ft. of slurry). Caliper plus excess circulated to surface.

8 1/2" production - uncemented liner will be run.

V. Drill Stem Test Program: none anticipated

VI. Directional Data: (See Figures 6 and 7)

	<u>MD</u>	<u>TVD</u>	<u>N/S</u>	<u>E/W</u>
Kickoff Point	3150'	3150'	0'	0'
9 5/8" casing (65°inc)	3700'	3585'	-205'	185'
82° inclination	3850'	3625'	-305'	275'
90° inclination	4115'	3645'	-505'	455'
Total Depth	6315'	3645'	-2390'	1230'

Note: estimated build rates of 12°/100' MD and 3°/100' MD are planned. All hole drilled outside the 790' setbacks will be cemented. Desired azimuth range: 130° - 160°. Actual azimuth may change due to results of FMS to be run at 65° inclination.

NOTE:

Abnormal pressures in the Fruitland Coal are anticipated (0.55 psi/ft)  
Abnormal pressures in the Navajo City Chacra are anticipated (0.25 psi/ft)

No abnormal temperatures are anticipated.

No hazardous zones are anticipated.

New casing will be utilized.

Cementing Contractor will provide the BLM with a chronological log including the pump rate and pressure, and the slurry density and volume for all cement jobs.

# HOWELL L #5

T 30 N, R 08 W

800' New Construction

Section 34: SENE 1100'  
35: SWNW 1300'  
W2SW 2100'  
NESW 700'

Remaining existing roads are on  
existing BLM ROW: NM 68568

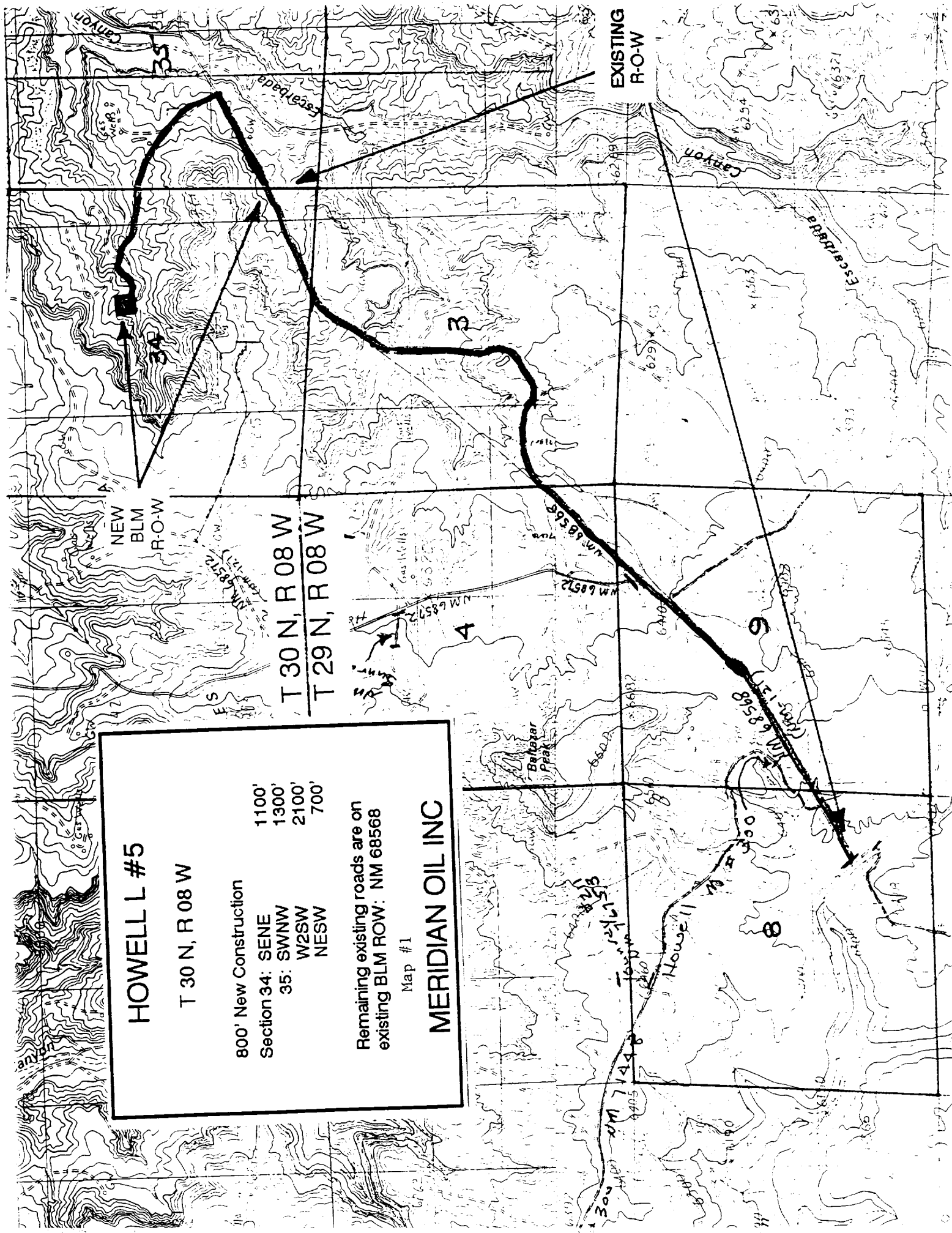
Map #1

MERIDIAN OIL INC

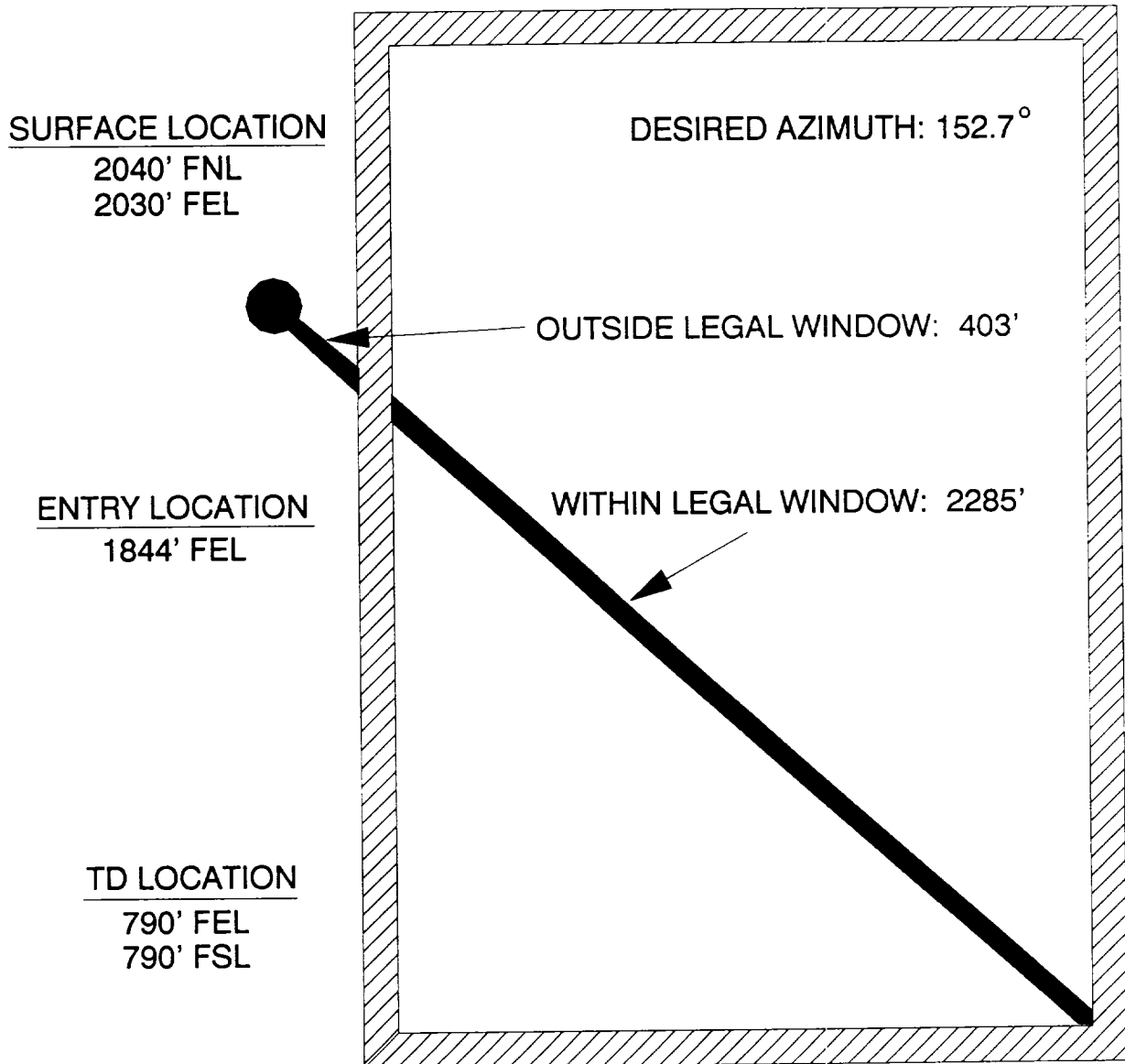
T 30 N, R 08 W  
T 29 N, R 08 W

NEW  
BLM  
R-O-W

EXISTING  
R-O-W



HOWELL L #5  
SEC 34-T30N-R08W  
PREDRILL PLAN



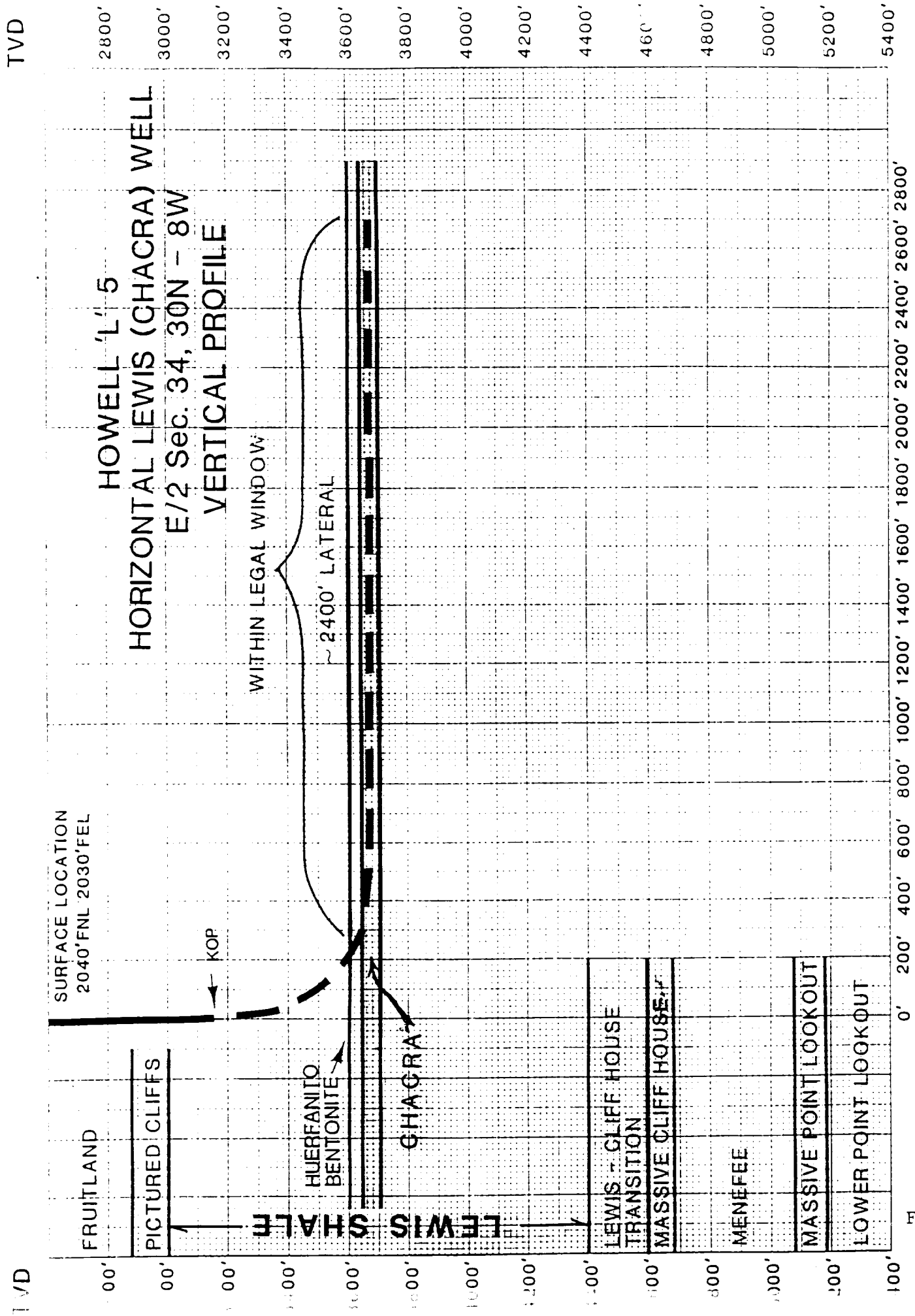
LEGAL LIMITATIONS (FROM SURFACE LOCATION)

AT START OF OPEN-HOLE: 185' EAST

AT TOTAL DEPTH: 2390' SOUTH; 1230' EAST

NOTICE: UNCEMENTED CASING WILL BE WITHIN THE 790'  
SETBACKS OF THE 320 SPACING.





DEPARTURE FROM VERTICAL

Figure #7